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Environmental Impact Assessment Record of Determination

M90 Junction 3 Mainline Southbound

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Project Details

Description

BEAR Scotland has been commissioned by Transport Scotland to carry out resurfacing works on the M90 carriageway. The project brief is to undertake carriageway resurfacing to a maximum depth of 200mm. Road markings and studs will be reinstated to [Traffic Signs Manual Chapter 5](#), across a length of approx. 1.36km (1.47ha).

Construction activities for the resurfacing procedure are as follows:

- Set up traffic management (TM) and mark out site,
- Milling of existing bituminous material by road planer,
- Jackhammer and compressor for breaking up surfaces not accessible by planer (e.g., around gullies),
- Loader/excavator used to collect and move excess material,
- Sweeper to collect loose material and provide clean laying surface,
- Milled out/excavated materials all taken off site,
- Tack/bond coat laid,
- Binder material laid and compressed by paver (where required),
- Material compacted using a heavy roller,
- New bituminous surface course material laid by paver,
- Material compacted using a heavy roller,
- Mechanical sweeper to collect loose material,
- HGV for removal and replacement of material,
- Road markings and studs applied where necessary, and
- Remove TM and open road.

The works are programmed to be completed within the 2026/2027 financial year with works expected to begin on 15th September 2026. Works will be undertaken over 11 nights (20:30-06:00). TM will consist of a full nighttime road closure of the M90 southbound (SB) carriageway with a signed diversion in place. Traffic will be diverted via Sanderling Way, Lapwing Drive, Carnegie Avenue, and A823(M).

Location

The scheme lies on the M90 carriageway on the eastern periphery of Dunfermline, within the Fife Council boundary, and is surrounded predominantly by urban development and agricultural land (Figure 1).

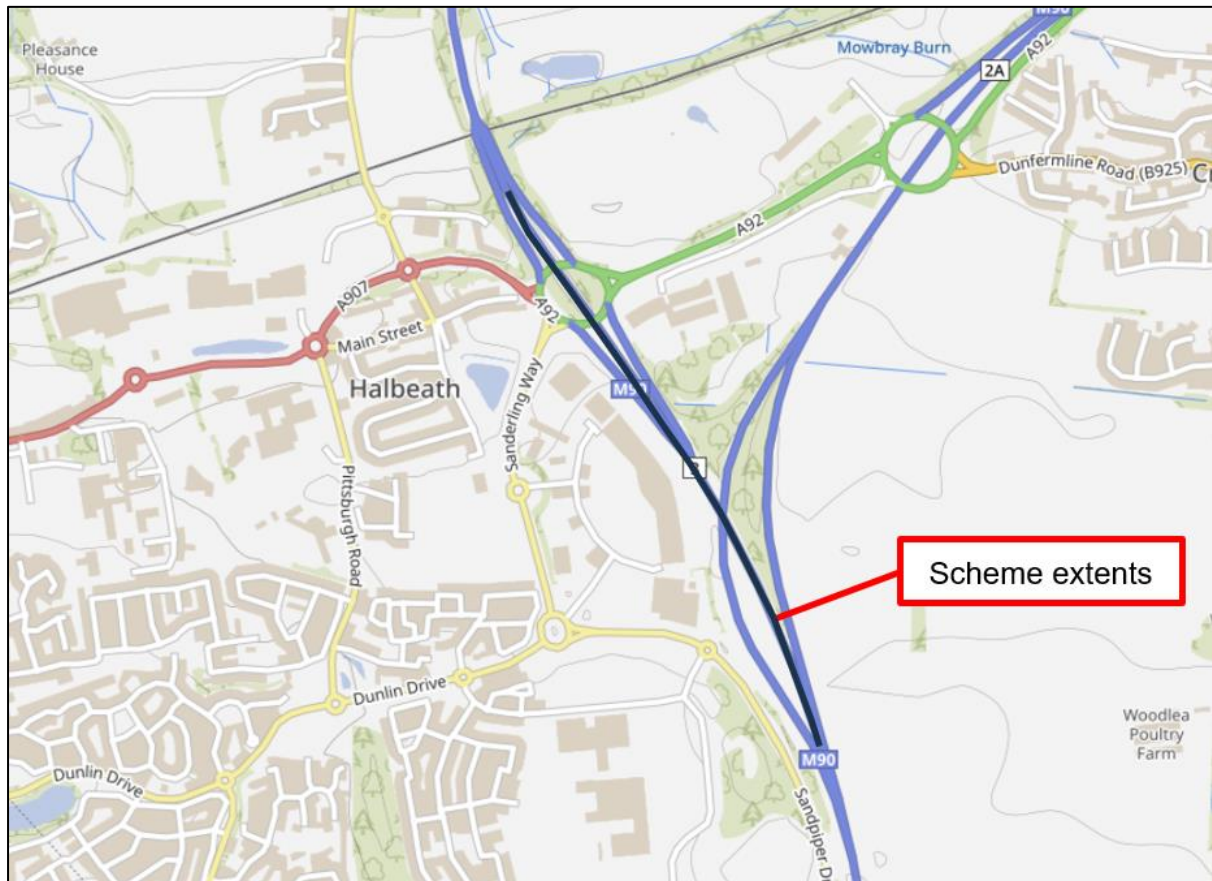


Figure 1. Extents of the Works. - Source: Asset Management Performance System (AMPS). © Europa Technologies Ltd. Contains Ordnance Survey data © Crown copyright and database right 2018.

Description of local environment

Air quality

For properties within 300m of the scheme – refer to ‘Population and Human Health’.

A search of the [Air Quality in Scotland](#) online mapping tool records show air quality monitoring sites in the wider areas recording bandings to be within the ‘green zone’ (Low Index 1-3).

The scheme lies within the boundary of Fife Council, which has no Air Quality Management Areas (AQMA) within its administrative boundary. The nearest AQMA, ‘Glasgow Road 2013 Air Quality Management Area’, lies within the boundary of City of Edinburgh Council and is located approx. 14.8km south of the scheme extents. The AQMA has been declared for nitrogen dioxide (NO₂).

There are 10 sites registered on the Scottish Pollutant Release Inventory ([SPRI](#)) for pollutant releases to air within 10km of the scheme (last 10 years):

- Elmbank Poultry Farm, Crossgates, Fife - Intensive livestock production and aquaculture – located 2.2km east of the scheme extents and declared for Ammonia (t) and Methane (t).
- Craigies Poultry Farm, Townhill, Dunfermline - Intensive livestock production and aquaculture – located 3.2km northwest of the scheme extents and declared for Ammonia (t).
- Mossbank Poultry Farm, Cowdenbeath, Fife - Intensive livestock production and aquaculture - located 3.7km east of the scheme extents and declared for Ammonia (t)
- Fife Council, Lochhead L/F, By Wellwood, Fife - Waste and waste-water management - located 4.6km northwest of the scheme extents and declared for Carbon dioxide (kt), Chlorofluorocarbons (CFCs) (kg) and Methane (t).
- Greenknowes Poultry Farm, Kelty, Fife - Intensive livestock production and aquaculture - located 4.6km northwest of the scheme extents and declared for Ammonia (t).
- Fife Ethylene Plant, Mossmorran - Chemical industry - located 5.2km east of the scheme extents and declared for:
 - Benzene (t)
 - Butadiene (kg)
 - Carbon dioxide (kt)
 - Carbon monoxide (kt)
 - Ethylene (t)
 - Methane (t)

- Nitrogen oxides, NO and NO₂ as NO₂ (kt)
 - Non-methane volatile organic compounds (NMVOCs) (t)
 - Particulate matter - total (t)
 - Toluene (kg)
- Fife NGL Plant, Cowdenbeath - Energy sector - located 5.9km east of the scheme extents and declared for:
 - Carbon dioxide (kt)
 - Carbon monoxide (kt)
 - Hydrochlorofluorocarbons (HCFCs) (kg)
 - Methane (t)
 - Nitrogen oxides, NO and NO₂ as NO₂ (kt)
 - Nitrous oxide (t)
 - Non-methane volatile organic compounds (NMVOCs) (t)
 - Sulphur oxides, SO₂ and SO₃ as SO₂ (kt)
- Rosyth Dockyard, Dunfermline - Other activities - located 6km south of the scheme extents and declared for non-methane volatile organic compounds (NMVOCs) (t).
- Glendevon Poultry Farm, Wagon Rd, Dunfermline - Intensive livestock production and aquaculture - located 6.4km southwest of the scheme extents and declared for Ammonia (t)
- Units 10 & 12, Lochgelly Ind Park, Lochgelly - Chemical industry - located 7.9km northeast of the scheme extents and declared for Perfluorocarbons (PFCs) (kg).

Baseline air quality within the scheme extents is likely to be primarily influenced by traffic along the M90 carriageway. Secondary sources are most commonly derived from motor vehicles travelling along local network roads, and day-to-day urban and agricultural activities. The Dunfermline to Perth railway line is located approx. 60m north of the scheme extents, therefore occasional train movements will also have an impact.

Cultural heritage

The [PastMap](#) and [Historic Environment Scotland](#) (HES) online mapping tool records that no designated cultural heritage assets lie within 300m of the scheme extents.

Of lesser cultural heritage value, 10 undesignated cultural heritage assets (UCHAs) lie within 300m of the scheme extents. Only two of which are located within 15m of the trunk road:

- Dunfermline, Halbeath, Halbeath Interchange – NRHE - Classification: motorway interchange (20th century)
- Dunfermline, Halbeath, Prathouse Row – NRHE - Classification: cottage(s) (18th century)

Construction of the M90 carriageway is likely to have removed any archaeological remains that may have been present within the carriageway boundary. The potential for the presence of unknown archaeological remains in the study area has therefore been assessed to be low.

Given that the works will be restricted to the existing M90 carriageway boundary and depth, that no designated cultural heritage features are located within 300m of the scheme, the potential for impacts to cultural heritage have been deemed negligible. As such cultural heritage has been scoped out of further environmental assessment.

Landscape and visual effects

The scheme is not situated within a [National Park](#) (NP) or [National Scenic Area](#) (NSA).

The Landscape Character Type (LCT) within the scheme extents is 'Lowland Hills and Valleys' (no. 186) ([Scottish Landscape Character Types](#)). The key characteristics of which are:

- Variety and subtlety of landform.
- Generally dominated by open, regular farmland patterns of medium scale fields of arable and grasslands.
- Variable pattern of post and wire fences and mostly tall hedges with hedgerow trees.
- Extensive areas of forestry, shelter planting, roadside planting and policies linked to large estates.
- Regular, often linear, pattern of the distribution of steadings and larger settlements and towns, all of which are generally well related to the landscape.
- Towns in valleys enclosed by the landform of low hills which form a rural backdrop
- Network of roads often well related to landform.
- Dominant linear and point features of forests and tree groups, individual trees or local buildings.
- A generally tended, safe, quiet, balanced and calm landscape, but also a busy, random, disturbed and noisy one in the more urban, industrialised areas.
- Variety of interrelated middle and long distance views of, from and across the low hills.

[Land Use](#) within 300m of the study area is comprised of the following:

- Motorway and Major Roads.

- Restored Agricultural Land
- Rectilinear Fields and Farms.
- Industrial or Commercial Area.
- Urban Area.
- Rough Grazing.
- Plantation.

The [national scale land capability for agriculture](#) classifies land surrounding the scheme as being:

- ‘Class 3.2’ - Land capable of average production though high yields of barley, oats and grass can be obtained. Grass leys are common.

Woodland within the study area consists of:

- Approx. 2.5ha of young tree and shrub woodland which borders the M90 SB within the scheme extents and is registered on the [Native Woodland Survey of Scotland](#) (NWSS).
- Approx. 1.6ha of young tree woodland which is located 230m south the scheme extents and is registered on the NWSS.
- Approx. 4.2ha of young tree woodland which is located 260m south the scheme extents and is registered on the NWSS.

There are no woodlands registered on the [Ancient Woodland Inventory Scotland](#) database, and there are no trees covered by a Tree Preservation Order (TPO) within 300m of the scheme extents.

The existing trunk road is a prominent linear landscape feature. The trunk road corridor, for example, has a distinct character shaped by fast-flowing traffic, road markings, safety barriers, signage, landscaping, etc. The scale of the trunk road detracts from the quality and character of the wider landscape

Biodiversity

The [NatureScot Sitelink](#) online mapping tools identifies that the:

- The Firth of Forth SPA and Ramsar site are located approx. 5km south of the scheme extents.
- The Outer Firth of Forth and St Andrews Bay Complex SPA is located approx. 5km north of the scheme extents.
- The Loch Leven SPA and Ramsar Site lie approx. 10km north of the scheme extents

There are no Sites of Special Scientific Interest (SSSIs), Local Nature Conservation Sites (LNCSs) or Local Nature Reserves (LNRs) designated for biodiversity features within 300m of, or which share connectivity to the scheme.

The Firth of Forth, and Loch Leven SPAs and Ramsar Sites have component SSSIs.

The NBN atlas also holds records of numerous bird species within 2km over a ten-year period. Under the Wildlife and Countryside Act 1981 (as amended) (WCA), all wild birds and their active nests are protected.

A search of the NBN online mapping tool records seven plant species as listed within the Network Management Contract (NMC), within 2km of the scheme extents (in the last 10-years):

Invasive non-native species (INNS):

- Japanese Knotweed (*Reynoutria japonica*).
- Himalayan balsam (*Impatiens glandulifera*).

Injurious weeds, as listed under the Weeds Act 1959:

- Broad-leaved dock (*Rumex obtusifolius*).
- Common ragwort (*Jacobaea vulgaris*).
- Creeping thistle (*Cirsium arvense*).
- Curled dock (*Rumex crispus*).
- Spear thistle (*Cirsium vulgare*).

Invasive native perennial:

- Rosebay willowherb (*Chamaenerion angustifolium*).

The closest record relates to broad-leaved dock, recorded approx. 0.13km southwest of the scheme extents (recorded in 2020).

A search of the Asset Management Performance System (AMPS) online mapping tool records no instances of INNS however of less significance invasive native perennial rosebay willowherb is recorded within the verge of the scheme extents.

The habitat immediately bordering the M90 within the scheme extents consists primarily of agricultural fields bordered by hedgerows, with some small areas of woodland and industrial land at the eastern extents. While there is some availability of roadside vegetation, habitat immediately bordering the M90 carriageway is assessed to be of reduced ecological value, due to the high likelihood of disturbances from high volume, fast-flowing traffic and that the M90 carriageway

limits the connectivity and continuity for species between their potential habitats on either side of the road.

Outwith the trunk road boundary, agricultural land surrounds the scheme with an industrial estate to the south. The areas of agricultural land management restrict the occurrence of semi-natural and natural vegetation types. Most field boundaries are comprised of post-and-wire fencing and vegetative features further delineating field boundaries e.g., woodland, shrub hedgerow, rough grassland, ruderal herb stands and scrub. Linear features at field boundaries have wildlife value, both as corridors in an intensively managed landscape, and as habitats for birds and small animals.

Geology and soils

The M90 within the scheme extents is not located within a [Geological Conservation Review Site](#) (GCRS), and there are no [Local Geodiversity Sites](#) (LGS) within 300m of the scheme extents.

The [National Soil Map of Scotland](#) online mapping tool records two generalised soil types and major soil groups within the scheme extents:

- Brown soils.
- Gleys (major soil group) and Mineral gleys (generalised soil type).

The [British Geological Survey](#) online mapping tool records that the superficial geology within the scheme extents is comprised of:

- Glaciofluvial Ice Contact Deposits - Gravel, Sand and Silt.
- Till, Devensian (Diamicton).
- Alluvium - Clay, Silt, Sand and Gravel.

The bedrock geology within the scheme extents is recorded as

- Limestone Coal Formation - Sedimentary Rock Cycles – Clackmannan Group Type.
- Lower Limestone Formation-Sedimentary rock cycles, Clackmannan Group type.
- Top Hosie Limestone - limestone.

There is no evidence of historical industrial processes or the storage of hazardous materials that could have given rise to significant land contamination within the scheme extents.

Given the restriction of the works to the M90 carriageway boundary, and the lack of any earthworks, local geology and soils are unlikely to be affected by the proposed works. Therefore, geology and soils has been scoped out of further environmental assessment.

Material assets and waste

The proposed works are required to resurface the worn carriageway and reinstate road markings. Materials used will consist of:

- TS2010 10mm Agg Site Class 1.
- AC20 Binder.
- AC32 Base.
- Tack/Bond Coat.
- Paving Grade Bitumen.
- Weatherline+ Thermoplastic Extrusion Road Markings.
- Embedded Road Studs.

The scheme has a value greater than £350,000. As a result, a Site Waste Management Plan (SWMP) is required.

The scheme involves removal of the surface course and localised areas of binder. The main waste produced during the works will be bituminous materials which will be removed from site, none of which is classified as hazardous material containing coal tar.

Noise and vibration

For properties within 300m of the scheme refer to “Population and Human Health.

Works are not located within a [Candidate Quiet Areas](#) (CQA).

The day-evening-night modelled noise level (Lden) (pertaining to the trunk road) for the scheme extents ranges between 75 and 80 decibels (dB), with levels dropping to between 65 and 70 dB at the nearest Noise Sensitive Receptor (NSR) (residential property) ([Scotland's Noise Scotland's Environment](#)).

Baseline noise and vibration in the study area is mainly influenced by vehicles traveling along the M90 carriageway. Secondary sources are derived from vehicles travelling along nearby local network roads and day-to-day land management activities. Communication with the Design Engineer confirmed that the road surface

is in a poor condition, with a series of defects, which have the potential to elevate ambient noise levels. The Dunfermline to Perth railway line is located approx. 60m north of the scheme extents, therefore occasional train movements will also have an impact.

Population and human health

The scheme is located on the periphery of Dunfermline as such numerous residential properties, business premises and industrial properties lie within 300m of the scheme, with the closest residential properties located approx. 80m west of the scheme. The only properties visible from the scheme extents are those located within the Fife Leisure Park, all others are screened from the scheme by raised roadside embankments, tree shelterbelts, topography and intervening properties. Of note, the following are located within 300m of the scheme:

- Travelodge Dunfermline is located 50m west of the scheme extents.
- Sweet Chestnut Inn is located 100m west of the scheme extents.
- Premier Inn Dunfermline Hotel is located 170m west of the scheme extents.
- The Wee Hoose Fife is located 250m west of the scheme extents.

There are no non-motorised (NMU) or community facilities with connectivity to the scheme extents. Street lighting is absent throughout the scheme extents (although there is street lighting for the Halbeath Junction Roundabout above).

The M90 trunk road within the scheme extents is a dual carriageway which has a speed limit of 70mph throughout. The Average Daily Traffic (ADT) flow is low (10,451 motor vehicles (ID: [JTC06421](#), 2026 data)).

Road drainage and the water environment

The [Scottish Environment Protection Agency \(SEPA\) River Basin Management Plan](#) online mapping tool records no classified surface waterbodies spanned by, culverted beneath or within 300m of the scheme extents.

Eight small minor unclassified surface waterbodies thought to be a minor tributary or drainage channel are located within 300m of the scheme extents:

- Drain1 – located approx. 20m east of the scheme.
- Mowbray Burn – culverted beneath the trunk road approx. 30m north of the scheme.
- Drain2 – located approx. 35m east of the scheme.
- Drain3 – located approx. 160m west of the scheme.

- Pond1 – located approx. 200m west of the scheme.
- Drain4 – located approx. 220m north of the scheme.
- Pond2 – located approx. 230m northeast of the scheme.
- Pond3 – located approx. 260m east of the scheme.

These waterbodies are considered to be too small (in terms of catchment area) to be classified as main stem waterbodies by SEPA under the Water Framework Directive (WFD).

A search of the [SEPA's Flood Map](#) online mapping tool records that the M90 trunk road at the scheme extents is at low to medium risk of surface water flooding (This means it has a 0.1% chance and 0.5% chance of flooding each year respectively).

A search of the [Scotland's Environment](#) (SE) online mapping tool determined that the scheme extents lie on the 'Dunfermline and Kirkcaldy' groundwater, which has been classified as 'Poor'.

A search of the [SE](#) online mapping tool determined that the FRB does not lie within a Nitrate Vulnerable Zone.

Climate

The [Climate Change \(Scotland\) Act 2009](#) ('The Act'), and its subsequent amendment under the [Climate Change \(Emissions Reduction Targets\) \(Scotland\) Act 2019](#), sets the framework for the Scottish Government to address climate change. The Act has an ambitious target to reach Net Zero greenhouse gas emissions by 2045, with any residual emissions balanced by removing carbon dioxide from the atmosphere. This is five years earlier than the rest of the UK due to the greater potential for carbon sequestration in Scotland.

The Act was amended to replace interim targets with carbon budgets. Carbon budgets are legally binding caps on greenhouse gas emissions in Scotland over five-year periods. In line with the Act, the Climate Change Committee (CCC) published advice on the level of Scotland's four carbon budgets, covering the period 2026 to 2045, recommending what the Scottish Government sets its carbon budgets at for annual average levels of emissions. These recommendations are based on an ambitious but credible route to Net Zero for Scotland by 2045.

Emissions reductions from surface transport are the largest contribution to meeting the first two carbon budgets. The pathway for surface transport emission reduction is primarily driven by the uptake of electric vehicles, in addition to measures to enable a shift from car use to public transport and active travel, which all play a role in reducing emissions from fossil fuel cars. Ensuring efficiency of existing transport

infrastructure and improving/providing new active travel facilities is therefore important to support these carbon reduction budgets.

Transport is the largest contributor to harmful climate emissions in Scotland. In response to the climate emergency, Transport Scotland are committed to reducing their emissions by 75% by 2030 and to the above noted legally binding target of net-zero by 2045. Transport Scotland is committed to reducing carbon across Scotland's transport network and this commitment is being enacted through the Mission Zero for Transport ([Mission Zero for transport | Transport Scotland](#)).

Policies and plans

This Record of Determination has been undertaken in accordance with all relevant regulations, guidance, policies and plans, notably including the Environment and Sustainability Discipline of the Design Manual for Roads and Bridges ([Design Manual for Roads and Bridges \(DMRB\)](#)) and Transport Scotland's Environmental Impact Assessment Guidance ([Guidance - Environmental Impact Assessments for road projects](#)).

Description of main environmental impacts and proposed mitigation

Air quality

During the construction phase, activities undertaken on site could potentially have some minor localised and short-term air quality impacts in proximity to the works. The construction phase will, for example, require a range of ancillary plant, vehicles, and non-road mobile machinery (NRMM) which will contribute to local dust and air pollutants. The main sources are likely to be dust generated by cold milling in preparation of carriageway resurfacing, as well as exhaust emissions from ancillary plant and vehicles. As a result, there is potential for impacts to local air quality.

However, considering the nature and duration of the scheme, along with implementation of mitigation detailed below, the proposed works' impacts on local air quality levels during the construction period are assessed as not significant.

Upon completion of the works, no residual air quality impacts are anticipated.

Air quality mitigation measures:

- A water-assisted dust sweeper will sweep the carriageway after dust-generating activities, and waste will be contained and removed from site as soon as is practicable.
- Materials that have a potential to produce dust will be removed from site as soon as possible, and vehicles that remove cold-milled material from site will have sheeted covers.
- Ancillary plant, vehicles and NRMM will have been regularly maintained, paying attention to the integrity of exhaust systems.
- Ancillary plant, vehicles and NRMM will be switched off when stationary to prevent exhaust emissions (e.g., there will be no idling vehicles).
- Cutting, grinding, and sawing equipment (if required) will be fitted or used in conjunction with suitable dust suppression techniques e.g., local exhaust ventilation system that fits directly onto tools.
- Regular monitoring (e.g., by engineer or Clerk of Works) will take place when activities that have the potential to impact local air quality are occurring. In the unlikely event that unacceptable dust or exhaust emissions are emanating from the site, the operation will, where practicable, be modified and re-checked to verify that the corrective action has been effective. Actions to be considered include: (a) minimizing cutting and grinding on-site, (b) reducing the operating hours, (c) changing the method of working, etc.

Landscape and visual effects

There will be a short-term impact on the landscape character and visual amenity of the site as a result of the presence of construction plant, vehicles, and TM. However, people, ancillary plant, vehicles, NRMM and materials will be restricted to areas of made/engineered ground on the M90, and construction works are programmed to be undertaken at night (11 nights). Furthermore, the M90 is largely screened from the surrounding landscape by raised roadside embankments and tree shelterbelt, as such, the visual impact of the works will be somewhat reduced.

Considering the nature, duration, size, and scale of the scheme, and with implementation of mitigation detailed below, impacts on landscape and visual effects are assessed as not significant.

Upon completion of the works, no residual impacts on landscape and visual effects are anticipated e.g., when complete the visual appearance will remain largely unaffected, with a renewed road surface being the only discernible change.

Landscape and visual effects mitigation measures:

- The site will be monitored regularly for signs of litter and other potential contaminants, and litter will be removed before and after works take place.
- The site will be left clean and tidy following construction.
- Where possible, construction vehicles will not be left in places where soil or vegetation can be damaged. If damage to road verge occurs it will be lightly cultivated or graded (upon completion of the works) to allow natural recolonization by local species and promote integration with existing landscape character.

Biodiversity

The Firth of Forth SPA and Ramsar site and the Outer Firth of Forth and St Andrews Bay Complex SPA are located approx. 5km south of the scheme extents and the Loch Leven SPA and Ramsar Site lie approx. 10km north of the scheme extents at their closest point. Given that the scheme is located within the buffer zones of some qualifying features of these European Sites a Habitat Regulations Appraisal (HRA) was undertaken. Given the distance separating the scheme from the designated sites, coupled with the nature and duration of the works, and restriction to the M90 carriageway the HRA determined no likely significant effects (LSE) on the qualifying features of the designated sites.

A temporary short-term increase in noise levels may cause disturbance to local wildlife if present in the vicinity of the works. The works will, for example, require a

range of ancillary plant, vehicles and NRMM which will emit noise and create potential disturbance. The works will also require delivery of materials and the presence of personnel to facilitate the improvements to the road surface. However, the number of construction vehicles and construction operatives required onsite is low given the scale and scope of works.

Of lower concern, rosebay willowherb, an invasive native perennial (as listed in the Network Management Contract), is present within the verges surrounding the scheme. However, all works will be restricted to resurfacing of the existing M90 carriageway boundary, as such, providing the mitigation detailed below is adhered to there is limited potential to spread the species.

Considering the nature, duration, size, and scale of the scheme, and with implementation of mitigation detailed above, the proposed works impacts on biodiversity throughout the construction period are therefore assessed as not significant.

Upon completion of the works, no residual impacts are anticipated in relation to biodiversity.

Biodiversity mitigation measures:

- Given the suitable habitat and records of protected species within proximity to the scheme extents, Toolbox Talk TTN-139 'Protected Species', will be briefed to all site operatives prior to the commencement of works.
- Where possible, artificial lighting used during night works will be sufficiently screened and aligned so as to ensure that there is no direct illumination of neighbouring habitat (e.g., locations adjacent to tree shelterbelt, woodland, etc.) to ensure minimal impact on nocturnal species.
- The works are not permitted to disturb or destroy any active birds nests. If an active birds nest is identified onsite that will be impacted by works, BEAR Scotland's Environmental Team will be contacted.
- All site workers will have received adequate training relevant to their role prior to working on the site, including specific environmental inductions and 'toolbox talks' as required.
- Site personnel will remain vigilant for protected species and will not approach or touch any animals seen on site. Any sightings of protected species will be reported to BEAR's Environmental Team. Should a protected species be encountered or move within 50m of the active works, works will be temporarily halted until the animal(s) move at least 50m away from the construction site, or until BEAR's Environmental Team can provide advice.
- The Contractor will employ 'soft start' techniques for all noisy activity to avoid sudden and unexpected disturbance during works. Each time the activity is started up after a period of inactivity, the noise levels will be gradually increased

over a period of 30 minutes to permit animals (including birds) to move away from the disturbance.

- All equipment stored onsite, if necessary, will be checked at the start of each workday to ensure mammal species are not present. Any storage containers/plant within the compound will also be secured overnight to prevent exploration by mammal species. Any areas where an animal could become trapped (e.g., storage containers) will also be covered at the end of each working day.
- People, ancillary plant, vehicles, NRMM and materials will be restricted to areas of made/engineered ground (as much as is reasonably practicable). If during works unforeseen access to the surrounding environment is required, works will cease in this area and BEAR Scotland's Environmental Team will be contacted to allow consideration of potential environmental effects.
- BEAR Scotland's Environmental Team will be contacted to allow consideration of potential environmental effects if:
 - unforeseen site clearance is required,
 - unplanned works are to be undertaken out with the carriageway boundary,
 - there is any deviation from the agreed plan, programme and/or method of working,
 - nesting birds are found onsite.
 - BEAR Scotland's Control Room will be contacted if there is a pollution incident.

Material assets and waste

Minimising impacts arising from construction materials are focussed upon making the most efficient use of materials onsite to reduce the need for imported primary materials and minimise the creation and disposal of waste through (i) reduction, (ii) re-use, and (iii) recycling. Potential impacts have been assessed for both the construction and operational phases of this scheme. It is anticipated that most material impacts are likely to arise during construction, though long-term residual impacts could occur post construction during the operational phase e.g., during the disposal of materials arising from routine maintenance operations.

However, the detailed design will reduce the requirements for primary materials e.g., the carriageway surfacing, and subbase will be carefully considered to minimise the requirements for importing primary material. Materials will also be derived from recycled, secondary, or re-used origin as far as practicable within the design specifications to reduce natural resource depletion. Specifying TS2010 surface course also allows a wider array of aggregate sources to be considered when compared to typical stone mastic asphalt (SMA). As a result, the use of TS2010 should reduce the usage of imported aggregates and increase the use of a wider

range of sustainable aggregate sources. The design life for the TS2010 surfacing is also estimated to be 20 years. The enhanced durability of TS2010 therefore reduces reoccurring routine maintenance and associated levels of traffic disruption to this section of road over the period.

Considering the nature, duration, size, and scale of the scheme, and with implementation of the mitigation detailed below, the proposed works impacts on material assets and waste throughout the construction period are therefore assessed to be not significant. Upon completion of the works, no residual impacts are anticipated on materials or waste.

Material assets and waste mitigation measures:

- The waste hierarchy (Reduce, Reuse, Recycle and Dispose) will be employed throughout the construction works.
- A SWMP will be completed by the Designer and Contractor as required. The SWMP will provide details of the following:
 - The quantity and type of waste that will be produced.
 - How waste will be minimised, reused, recycled, recovered, or otherwise diverted from landfill.
 - How materials that cannot be reused, recycled, or recovered will be removed from site and consigned, transported and disposed of in full accordance with all relevant UK legislation.
- Good materials management methods (e.g., 'just-in-time' delivery) will be implemented wherever possible.
- The Contractor will comply with all 'Duty of Care' requirements, ensuring that any surplus materials or waste are stored, transported, treated, used, and disposed of safely without endangering human health or harming the environment. Waste transfer notes and/or waste exemption certificates (if required) will also be completed and retained.
- The Contractor is responsible for the recycling / disposal of non-hazardous road planings and will operate in line with the SEPA's EASR Regulatory Position Statement - Low Risk Waste Activities WAS-PS-07.
- Designated areas will be identified within which all materials and personnel, including construction compounds, where necessary, will be contained to limit environmental disturbance during construction works. This will include a designated area (if required) for segregation and reuse of waste materials.
- The selection of areas for materials stockpiling will avoid sensitive locations such as road drainage. Stockpiled materials with leachate potential, for example, will be stored away from road drainage to prevent cross-contamination with other materials, wastes, or groundwater.
- Materials will be stored with the appropriate security to prevent loss, theft, or vandalism.

- All temporary road signs and traffic cones will be removed from site on completion of works.
- Wastewater from welfare facilities (if required) will be subject to effluent treatment followed by tanker removal.
- If hazardous substances are used onsite, each substance will be subject to assessment under the Control of Substances Hazardous to Health (COSHH) Regulations 2002. Hazardous substances will also be clearly labelled, and disposed of, in line with relevant waste regulations. Special waste will also not be mixed with general waste and/or other recyclables.

Noise and vibration

Activities undertaken on site could potentially have some localised and short-term noise impacts in proximity to the works. The road works will, for example, require a range of ancillary plant, vehicles and NRMM for cold milling in preparation for carriageway resurfacing. Noise will also be generated by using breakers (jackhammers), chipping hammers, and rollers, etc. As a result, there is potential for noise and vibration effects to the residential property within the local area, located approx. 80m west of the scheme extents.

However, the works are not located within a CQA, they will also be completed over 11 nights, with the aim being to complete the noisiest works by 23:00 and will be undertaken on a rolling programme and as such will not be operating adjacent to the residential property for the entirety of the scheme's duration.

The road surface is in a poor condition, with a series of defects. Replacing the life-expired surface course with TS2010 road surfacing affords the benefits of a reduction in mid-to-high frequency traffic noise and a reduction in the ground vibrations. As a result, upon completion of the work, noise associated with the movement of vehicles on the trunk road should decrease post construction.

Considering the likely sources of noise and vibration, with the nature, duration, size, and scale of the scheme, and with implementation of the mitigation detailed below, it is unlikely that noise and vibration associated with the works will lead to significant impacts, disruption and/or complaints. The proposed schemes impacts from noise and vibration are assessed to be not significant.

Noise and vibration mitigation measures:

- The local authority environmental health department will be notified of nighttime working by BEAR Scotland's design engineer.

- Where possible, the noisiest work operations (e.g., cold milling, using breakers (jackhammers), chipping hammers, use of rollers, etc.) will be completed before 23:00.
- If unacceptable noise is emanating from the site the operation will, where possible, be modified and re-checked to verify that the corrective action has been effective. Actions to be considered include (a) minimizing cutting and grinding on-site, (b) reducing the operating hours, (c) repositioning equipment, (d) changing the method of working etc. Corrective actions will be actioned through the non-conformance reporting procedure, which ensures a root-cause analysis is carried out on each incident. The non-conformance procedure also ensures that appropriate corrective and preventative action measures are agreed and implemented in a timely fashion with all parties, and are recorded and actioned through to closeout, and fully auditable and traceable.
- Ancillary plant, vehicles and NRMM with directional noise characteristics will (where practical) be shut down in intervening periods between site operations.
- The use of paving breakers (jackhammers), chipping hammers, etc. will be avoided (except where there is an overriding justification), and if used will be fitted with mufflers or silencers of the type recommended by the manufacturer.
- Drop heights from vehicles and NRMM will be kept to a minimum to minimise noise when unloading.
- All ancillary plant, vehicles and NRMM used onsite will have been regularly maintained, paying attention to the integrity of silencers and acoustic enclosures.
- All compressors will be 'sound-reduced' models fitted with properly lined and sealed acoustic covers which will be kept closed when in use.
- HGV, site vehicles and NRMM will be switched to the minimum setting required by HSE and, where possible, will utilise 'broadband non-tonal' or 'directional sound reversing' alarms. Speed limits will also be reduced through the works.

Population and human health

During construction, activities undertaken on site have the potential to have temporary adverse impacts on local residents and road users. Numerous residential properties are located within proximity to the scheme and as such, there is potential for impacts to local residents in the form of noise/vibration impacts, visual disturbance and delays due to traffic management. However, no properties are located within 50m of the scheme and TM will only be in place for 11 nights (when traffic flows will be at a minimum), as such no congestion issues are noted during the proposed construction hours. Providing mitigation measures detailed below and those listed within the noise and vibration section are adhered to, the impacts are assessed to be somewhat reduced.

Considering the nature, duration, size, and scale of the scheme, and with implementation of the mitigation described above, impacts on population and human health are assessed as temporary, minor adverse in magnitude.

Upon completion of the works, there will be a positive impact in relation to population and human health due to the improvement of usability and safety provided by the new carriageway surface.

Population and human health mitigation measures:

- The local authority environmental health department will be notified of nighttime working by BEAR Scotland's design engineer.
- Construction lighting will take into account the need to avoid illuminating adjacent properties to avoid a nuisance at night, and non-essential lighting will be switched off at night.
- Where appropriate, a communication strategy (e.g., social media, consultation with local authority and other stakeholders, letter drop (for night-time works), etc.) will be initiated to keep local residents and businesses informed of the proposed working schedule, particularly the times and durations of noisy construction activities. The communication strategy will also provide a 24-hour contact number for the BEAR Scotland Control Room.
- Advanced signage will be strategically placed on the trunk road to notify stakeholders of the road closure and diversion at least seven days in advance.
- A Traffic Management Plan (TMP), which includes measures to avoid or reduce disruption to road traffic, will be produced in accordance with the Traffic Signs Manual (Department of Transport 2009). The TMP will ensure that there is no severance of community assets, access routes or residential development.
- Journey planning information will be available for drivers online at the trafficscotland.org website. Journey planning information will also be available for drivers online through BEARs social media platforms.

Road drainage and the water environment

During resurfacing works, there is potential for temporary adverse impacts on the water environment. Potential changes in water quality e.g., from pollution events (either by accidental spillage of sediments, particulate matter, chemicals, fuels or by mobilisation of these in surface water caused by rain) during works have the potential to have a direct or indirect effect on surrounding waterbodies.

Eight unclassified surface waterbodies are located within 300m of the scheme extents, however only three are located within 50m of the scheme extents. Although Drain1, Mowbray Burn and Drain2 are found within 50m, there will be no 'in-water' works and all land outwith the trunk road boundary is also considered out-of-bounds

to all construction staff during the works. The potential for a direct pollution incident within a waterbody is also unlikely e.g. experience gained from BEAR maintenance schemes elsewhere on the network has shown that where standard best working practice is adopted (e.g., adherence to SEPA Guidelines for Pollution Prevention (GGPs)), water quality is protected.

Considering the nature, duration, size, and scale of the scheme, and with implementation of the mitigation detailed below, the proposed works impacts on the road drainage and water environment are assessed as not significant.

Upon completion of the resurfacing works, no residual impacts are anticipated in relation to the road drainage and water environment.

Road drainage and the water environment mitigation measures:

- All site operatives will be made aware of the proximity of Drain1, Mowbray Burn and Drain2.
- No work has been identified that would require entering any surface waterbodies. If such a need were identified onsite, BEAR Scotland's Environmental Team will be contacted (before works commence) to allow consideration of potential environmental effects.
- The abstraction or transfers of water from, discharges to, or the washing of tools in surface waterbodies will not be permitted.
- The Contractor will implement measures to minimise the risk of sediment or accidental spillages entering the road drainage system e.g., prior to works commencing any roadside gullies within 10m of work activities will be protected (e.g., utilisation of drain covers or similar) to ensure full segregation of the works from the road drainage system. The Contractor will inspect these periodically to ensure that they have not been removed, damaged, or interfered with and they will be cleaned of silt and debris as necessary.
- Appropriate measures will be implemented during resurfacing operations to limit the potential for wastes (i.e. road planings) and materials (i.e. new asphalt) to enter any gullies present on site. On completion of resurfacing operations, any gullies present on site will be visually checked to ensure they have not become blocked as a result of the scheme.
- All site personnel will be made aware of site spillage response procedures and in the event of a spill, all works associated with the spill will stop, and the incident reported to the Site Supervisor. Small spills that did not leave the site boundary and are cleaned up without material environmental harm or residual environmental impact would most likely not be required to be notified to SEPA or other authorities. However, all such incidents will be recorded and reported to BEAR Scotland's Environmental Team. In the event of a 'serious incident', SEPA will be notified without delay. Such notification will include: (i) the time and duration of the incident, (ii) a description of the cause of the incident, (iii) any

effect on the environment as a result of the incident, and (iv) any measures taken to minimise or mitigate the effect and prevent a recurrence.

- All waste, vehicles, ancillary plant, NRMM and fuels will be stored in the compound(s) or laydown area and will be secured and located, if space is available, at least 10m from drainage entry points, in order to comply with GPP 5 'works and maintenance in or near water'. Refuelling will only be undertaken at designated refuelling areas (e.g., on hardstanding, with spill kits available, and >10m from drainage entry points, where practicable). Spill kits will also be available within all site vehicles and spill kits will be replenished onsite when required. Only designated trained and competent operatives will be authorised to refuel plant. Generators, and other ancillary plant and NRMM, where there is a risk of leakage of oil or fuel, will have internal bunding or will have a secondary containment system placed beneath them that meets 110% capacity requirements. Containment systems will also be emptied regularly. All waste, vehicles, ancillary plant, NRMM and fuels will also be stored in a manner that ensures they are protected from damage by collision or extremes of weather.
- Regular visual pollution inspections of the designated laydown area and work site (particularly near road drainage entry points) will be conducted (e.g., site walkover by engineer or Site Supervisor), especially during periods of heavy rain.
- All vehicles and NRMM onsite will have been regularly maintained, paying attention to the integrity of oil tanks, coolant systems, gaskets etc. A checklist will be present to make sure that the checks have been carried out.

Climate

BEAR Scotland, working on behalf of Transport Scotland, undertake carbon monitoring of major projects and operational activities. Emissions from activities are recorded using Transport Scotland's Carbon Management System. BEAR Scotland also undertakes resource efficiency activities to manage and reduce emissions contributing to climate change. The works will also extend the maintenance intervals required for future works. In doing so, the service life of the trunk road is also extended.

During works there is potential for impacts as a result of the emission of greenhouse gases through the use of equipment, vehicles, and NRMM, material use and production, and transportation of material/waste. However, considering the nature, duration, size and scale of the scheme, and the mitigation detailed below, the impacts to climate are considered to be minor and adverse in magnitude.

Climate mitigation measures:

- Use of warm mix asphalt as standard.
- Local contractors and suppliers will be used as far as practicable to reduce fuel use and greenhouse gases emitted as part of the works.

- BEAR Scotland will adhere to its Carbon Management Policy.
- Where possible, waste will be removed to local waste management facilities.

Vulnerability of the project to risks

There will be no change to the likelihood of flooding on the M90 within the scheme extents upon completion of the works.

Works are restricted to areas of made ground on the M90 carriageway surface, with access to the scheme gained via the M90 mainline.

A Site Environmental Management Plan (SEMP) will be produced by BEAR Scotland which sets out a framework to reduce the risk of adverse impacts from construction activities on sensitive environmental receptors. The Contractor will comply with all conditions of the SEMP during works and may be subject to audit throughout the contract.

Considering the above, the vulnerability of the project to of major accidents and disasters is considered to be low.

Assessment of cumulative effects

The proposed works are not anticipated to result in significant environmental effects. Due to the nature of the proposed works, no cumulative effects are anticipated with any other developments in the vicinity.

A search of the Scottish Road Works Commissioner's website ([map search](#)) has identified no works on the M90 surrounding the scheme extents.

In addition, a search using [Fife Council 'Simple Search'](#) identified 11 planning applications within 300m of the scheme extents within the last two years.

- 25/00704/ADV – Display of replacement and new internally, externally and non-illuminated signage to front, side and rear of showroom - located approx. 60m east of the scheme
- 24/02456/ADV – Display of internally illuminated and non-illuminated signage to front and side of showroom - located approx. 120m east of the scheme
- 25/00852/FULL – Alterations to building and car parking layout and associated works - located approx. 120m east of the scheme
- 24/02584/FULL – External alterations to hotel (Class 7) and part change of use from restaurant (Class 3) to hotel (Class 7) including associated external alterations - located approx. 140m west of the scheme

- 24/03304/CLP – Certificate of lawfulness (proposed) for the formation of hardstanding and bollards - located approx. 180m west of the scheme
- 21/02328/CDC1 – Approval of Matters Specified by Conditions 1 (f,m,n,o) and 5 of 20/03250/PPP for design framework for education land (Dunfermline Learning Campus) and erection of Class 10 (Non-Residential Institutions) college buildings and sports hall, and formation of vehicular access, car parking, landscaping, civic amenity space, footpaths and associated infrastructure (Completion of Development Certificate for 21/02328/ARC) - located approx. 210m west of the scheme
- 24/03100/ADV - Display of 2 No. illuminated fascia sign - located approx. 210m west of the scheme
- 25/01283/ADV – Display of various illuminated and non-illuminated signage - located approx. 220m west of the scheme
- 26/01000/FULL – Single storey extension to front of dwellinghouse - located approx. 220m west of the scheme
- 25/02714/ADV - Display of 1 free-standing LED illuminated sign and 1 LED backlit totem sign. – located approx. 280m northwest of the scheme.
- 25/02239/PPP - Planning permission in principle for the erection of 2 No. dwellinghouses and associated works including landscaping and drainage. – located approx. 300m northwest of the scheme.

While it is not possible to know the exact timings for the above planning applications, the resurfacing works will be restricted to the M90 carriageway and undertaken on a rolling programme therefore, it is unlikely that the proposed works will have a significant cumulative effect with any other future works in the area.

Assessments of the environmental effects

The M90 Junction 3 Mainline Southbound scheme lies within the buffer zone of qualifying species of the Firth of Forth SPA and Ramsar Site, the Outer Firth of Forth and St Andrews Bay Complex SPA and the Loch Leven SPA and Ramsar Site. A HRA has concluded that the works will not result in LSE on any of the qualifying species of the European Sites, and as such an Appropriate Assessment (AA) is not required.

As detailed in the Description of Main Environmental Impacts and Proposed Mitigation section, there are no significant effects anticipated on any environmental receptors as a result of the proposed works.

Statement of case in support of a Determination that a statutory EIA is not required

This is a relevant project in terms of section 55A(16) of the Roads (Scotland) Act 1984 as it is a project for the improvement of a road and the works (together with any area occupied by apparatus, equipment, machinery, materials, plant, spoil heaps, or other such facilities or stores required during the period of construction) exceed 1ha.

The project has been subject to screening using the Annex III criteria to determine whether a formal Environmental Impact Assessment is required under the Roads (Scotland) Act 1984 (as amended by The Roads (Scotland) Act 1984 (Environmental Impact Assessment) Regulations 2017). Screening using Annex III criteria, reference to consultations undertaken and review of available information has not identified the need for a statutory EIA.

The project will not have significant effects on the environment by virtue of factors such as:

Characteristics of the scheme:

- Works are restricted to like-for-like replacement of worn/damaged road surface, with all works restricted to made ground on the M90 carriageway surface
- Works are not expected to result in significant disturbance to protected species that may be present in the wider area
- The risk of major accidents or disasters is considered to be low.
- By removing the carriageway defects, this will provide this section of the M90 carriageway with another life cycle, and significantly improve the ride quality, which will result in safer conditions for road users.
- Any potential impacts of the works are expected to be temporary, short-term, not significant, and limited to the construction phase.

Location of the scheme:

- A HRA has been undertaken which has confirmed that the works will not result in LSE on the qualifying features of the designated sites.
- The scheme does not lie within any sites of historical, cultural, or archaeological significance.
- The scheme is not located within any areas designated for landscape interests.

- Land use will not change as a result of the works.
- The works do not require any private land acquisition.
- The scheme does not lie within any sites designated for geology or soils
- The scheme is not located within a densely populated area.

Characteristics of potential impacts of the scheme:

- The waste hierarchy will be followed to reduce waste to landfill.
- Works are programmed to take 11 nights to complete on a rolling programme, with the aim being to complete the noisiest works by 23:00.
- With good practice pollution prevention measures implemented onsite, there is a negligible risk of a pollution event e.g., compliance with the SEMP.

References of supporting documentation

F565 HRA – M90 Junction 3 Mainline Southbound

Annex A

“sensitive area” means any of the following:

- land notified under sections 3(1) or 5(1) (sites of special scientific interest) of the Nature Conservation (Scotland) Act 2004
 - land in respect of which an order has been made under section 23 (nature conservation orders) of the Nature Conservation (Scotland) Act 2004
 - a European site within the meaning of regulation 10 of the Conservation (Natural Habitats, &c.) Regulations 1994
 - a property appearing in the World Heritage List kept under article 11(2) of the 1972 UNESCO Convention for the Protection of the World Cultural and Natural Heritage
 - a scheduled monument within the meaning of the Ancient Monuments and Archaeological Areas Act 1979
 - a National Scenic Area as designated by a direction made by the Scottish Ministers under section 263A of the Town and Country Planning (Scotland) Act 1997
 - an area designated as a National Park by a designation order made by the Scottish Ministers under section 6(1) of the National Parks (Scotland) Act 2000.
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